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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,285	05/24/2006	Fang Chen	21506YP	4053

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EXAMINER	
CHEU, CHANGHWA J	
ART UNIT	PAPER NUMBER
1641	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,285	CHEN, FANG	
	Examiner	Art Unit	
	Jacob Cheu	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *17-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/24/2006*.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *1/8/2008*.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-16, drawn to a method for determining whether an analyte has a mixed androgen receptor agonist, antagonist or partial agonist activity.

Group II, claim(s) 17-22, drawn to a method for determining the ratio of agonist to antagonist activity of an analyte.

The application contains claims to more than one of the combinations of categories of inventions as set forth by 37 CFR 1.475.

According to 37 CFR 1.475 regarding unity of invention:

(a) An international and a national stage application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention"). Where a group of inventions is claimed in an application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

(b) An international or a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following combinations of categories:

(1) A product and a process specially adapted for the manufacture of said product; or

(2) A product and a process of use of said product; or

(3) A product, a process specially adapted for the manufacture of the said product, and a use of the said product; or

(4) A process and an apparatus or means specifically designed for carrying out the said process; or

(5) A product, a process specially adapted for the manufacture of the said product, and an apparatus or means specifically designed for carrying out the said process.

If an application contains claims to more or less than one of the combinations of categories of invention set forth in paragraph (b) above, unity of invention might not be present. Furthermore, the determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim.

The instant invention directs to two different inventions, namely determining whether an analyte has mixed or full agonist or antagonist in invention I and a method of determining the ratio of agonist versus antagonist of analyte in invention II.

During a telephone conversation with Mr. Reilly on 1/6/2008 a provisional election was made without traverse to prosecute the invention of Group I, claim1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-22 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Currently, claims 1-16 are under examination. Claims 17-22 are withdrawn from further consideration.

Claim Objections

2. Claims 1 and 6 are objected to because of the following informalities:

With respect to claim 1, step (a), it is noted that Applicant recites "full length human AR" and "AR ligand binding domain polypeptide". Although both are known in the literature, it is suggested that Applicant recites with the SEQ ID Nos for clarity. Similarly, claim 6 recites different animal source of AR ligand binding domain, i.e. rat, mouse, and monkey. It is suggested that Applicant recites SEQ ID Nos. for each species for clarity.

Deposit

With respect to claims 4 and 14, Applicant recites deposited cell line, ATCC HTB-131 and ATCC CRL-1740, respectively. However, no affidavit or declaration by applicant or assignees or a statement by an attorney of record who has authority and control over the conditions of deposit over his or her signature and registration number *stating that the deposit has been accepted by an International Depository Authority under the provisions of the Budapest Treaty, that all restrictions upon public access to the desposits will be irrevocably removed upon the grant of a patent on this application* and that the deposit will be replaced if viable samples cannot be dispensed by the depository is required. This requirement is necessary when deposits are made under the provisions of the Budapest Treaty as the Treaty leaves this specific matter to the discretion of each State.

Claim Rejections - 35 USC § 112

Scope of enablement

Threshold

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a significantly five-fold threshold in IC50, does not reasonably provide enablement for simply "substantially the same" or "less" than a second IC50 as distinguishing full agonist, full antagonist or mixed agonist. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

As set forth in *In re Wands, 858 F .2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988)*, enablement requires that the specification teach those skilled in the art to make and use the invention without undue experimentation. Factors to be considered in determining, whether a disclosure would require undue experimentation include 1) the nature of the invention, 2) the state of the prior art, 3) the predictability or lack thereof in the art, 4) the amount of direction or guidance present, 5) the presence or absence of working examples, 6) the quantity of experimentation necessary, 7) the relative skill of those in the art, and 8) the breadth of the claims.

The instant invention directs to a method of determining whether an analyte has a mixed androgen receptor (AR) full agonist, full antagonist or mixed agonist activity. The method comprises of using both full length human AR and the AR ligand binding domain (ARLBD) with labeled agonist in the presence of the tested analyte. The core of the assay is to determine the IC50 (50% inhibitory concentration) of the analyte as an indicator wherein if the IC50 for the reaction of full length of AR with the annalyte in the presence of agonist is substantially the

same with the second reaction of IC50 for the ARLBD with analyte in the presence of agonist, the results then show the analyte is either a full agonist or an antagonist. On the other hand, if the IC50 of the first reaction is much less than that of the second IC50, then the analyte has a mixed AR agonist.

In view of the specification, particularly the experimental data, Examiner considers the recitation "substantially the same" and "less than" in step (d) of claim 1, suffer analytical shortage which would not enable one ordinary skill in the art to perform the recited assay without undue experimentation.

Step (d) in claim 1 recites "wherein a first IC50 which is substantially the same with as a second IC50 determines that the analyte" has AR activity of full AR agonist or AR antagonist. The term "substantially the same" has not fully defined in the specification. Relying on the experimental data, particularly Figure 2 A-2C, the IC50 concentration in fact has significant difference which is inconsistent with the ordinary "substantially the same" notion. For example, Applicant states that DHT and R1881 are full agonists because they had the same binding affinity reflecting on the IC50. In fact, Figure 2A and 2B show the difference of the IC50 for R1881 analyte is 0.25 vs. 1.0 nM, whereas IC50 is 0.35 vs. 0.6 for DHT analyte. Moreover, in Figure 2C, the difference is even greater for CASODEX analyte, i.e. 20 vs. 70 nM. As indicated by Applicant, a "significant" reduction of the binding affinity is needed to the distinguishing (See Section 0045) and Applicant concluded such "significant" degree is about "*five fold*" (See Section 0082 and Figure 3A to Figure 3D; Applicant states "Group I compounds with *< 5-fold difference* in binding affinity in Section 0082)(emphasis added). It is noted that Applicant also recites such limitation in dependent claim 9. It is suggested that Applicant amends such limitation for assurance of enablement.

Similarly, step (d) in claim 1 recites "wherein a second IC50 which is less than the first IC50 determines that the analyte has the mixed AR agonist activity". The term "less than" encompasses from a marginal to abundantly significant degree. In fact, this term also

encompasses "substantially the same" for the determining "full agonist or full antagonist" if only marginally less degree occurs. It is noted that Applicant also concluded in the experiments of Figure 3A-3D, "Group II has *> 5 fold difference* in binding affinity" (See Section 0082)(emphasis added). The instant invention would not impose undue experimentation to one artisan in the art if Applicant incorporates the threshold limitation from the experiments, i.e. five-fold difference.

Conclusion

5. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Cheu whose telephone number is 571-272-0814. The examiner can normally be reached on 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jacob Cheu
Examiner
Art Unit 1641

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